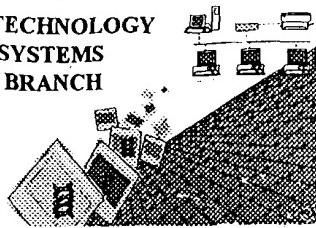


BIOTECHNOLOGY
SYSTEMS
BRANCH



RAW SEQUENCE LISTING
ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 10/620,052
Source: 1FW3
Date Processed by STIC: 1/15/04

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION AND PATENTIN SOFTWARE QUESTIONS, PLEASE CONTACT
MARK SPENCER, TELEPHONE: 703-308-4212; FAX: 703-308-4221

Effective 12/13/03: TELEPHONE: 571-272-2510; FAX: 571-273-0221

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 4.1 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

<http://www.uspto.gov/web/offices/pac/checker/chkr41note.htm>

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (<http://www.uspto.gov/ebc/efs/downloads/documents.htm>), EFS Submission User Manual - ePAVE)
2. U.S. Postal Service: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
3. Hand Carry directly to (EFFECTIVE 12/01/03):
U.S. Patent and Trademark Office, Box Sequence, Customer Window, Lobby, Room 1B03, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202
4. Federal Express, United Parcel Service, or other delivery service to: U.S. Patent and Trademark Office, Box Sequence, Room 4B03-Mailroom, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202

Revised 10/08/03



1/Fwo II

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/620,052

DATE: 01/15/2004

TIME: 10:08:38

Input Set : A:\-40-1.app

Output Set: N:\CRF4\01152004\J620052.raw

3 <110> APPLICANT: Hitoshi, Yasumichi
 4 Jenkins, Yonchu
 5 Markovtsov, Vadim
 6 Rigel Pharmaceuticals, Inc.
 8 <120> TITLE OF INVENTION: Modulators of Cellular Proliferation
 10 <130> FILE REFERENCE: 021044-004010US
 12 <140> CURRENT APPLICATION NUMBER: US 10/620,052
 13 <141> CURRENT FILING DATE: 2003-07-14
 15 <150> PRIOR APPLICATION NUMBER: US 60/395,443
 16 <151> PRIOR FILING DATE: 2002-07-12
 18 <160> NUMBER OF SEQ ID NOS: 78
 20 <170> SOFTWARE: PatentIn Ver. 2.1
 22 <210> SEQ ID NO: 1
 23 <211> LENGTH: 2164
 24 <212> TYPE: DNA
 25 <213> ORGANISM: Homo sapiens
 27 <220> FEATURE:
 28 <223> OTHER INFORMATION: protein kinase C, zeta (PKC-zeta), atypical
 29 protein kinase C isoform
 31 <400> SEQUENCE: 1
 32 atgcccagca ggaccgaccc caagatggaa gggagcggcg gcccgtccg cctcaaggcg 60
 33 cattacgggg gggacatctt catcaccagc gtggacgccc ccacgacctt cgaggagctc 120
 34 tgtgaggaag tgagagacat gtgtcgtctg caccagcage acccgctcac cctcaagtgg 180
 35 gtggacagcg aaggtgaccc ttgcacggtg tcctcccaga tggagctgga agaggcttc 240
 36 cgcctggccc gtcagtgcag ggtatgaaggc ctcatcattc atgtttccc gaggaccct 300
 37 gagcagccctg gctgtccatg tccgggagaa gacaaatcta tctaccgcgg gggagccaga 360
 38 agatggagga agctgtaccc tgccaaacggc cacctctcc aagccaagcg cttaacagg 420
 39 agagcgact gcggtcagtg cagcgagagg atatgggcc tcgcgaggca aggctacagg 480
 40 tgcataact gcaaactgtc ggtccataag cgctgccacg gcctcgccc gctgacctgc 540
 41 aggaagcata tggattctgt catgccttcc caagagcctc cagtagacga caagaacgag 600
 42 gacgccgacc ttccctccga ggagacagat ggaattgttt acatttcctc atcccgaaag 660
 43 catgacagca taaaagacga ctcggaggac cttaagccag ttatcgatgg gatggatgga 720
 44 atcaaaatct ctcaggggct tggctgcag gactttgacc taatcagagt catcggccgc 780
 45 gggagctacg ccaaggttct cctggtgccg ttgaagaaga atgaccaaatttacgc 840
 46 aaagtggta agaaagagct ggtgcattgat gacgaggata ttgactgggt acagacagag 900
 47 aagcacgtgt ttgagcaggc atccagcaac cccttcctgg tcggattaca ctccgtctc 960
 48 cagacgacaa gtcgggttgtt cctggtcatt gagtacgtca acggcgggaa cctgtatgttc 1020
 49 cacatgcaga ggcagaggaa gctccctgag gagcacgcca ggttctacgc ggccgagatc 1080
 50 tgcatacgccc tcaacttcgc acacgagagg gggatcatct acagggacct gaagctgac 1140
 51 aacgtcctcc tggatgcgga cgggcacatc aagctcacag actacggcat gtgcaaggaa 1200
 52 ggcctggccc ctggtgacac aacgagcaact ttctgcgaa cccgaatta catgcctccc 1260
 53 gaaatcctgc gggagagga gtacgggttc agegtggact ggtgggcgt gggagtcttc 1320
 54 atgtttgaga tggatggccgg cgcgtccccg ttcgacatca tcaccgacaa cccggacatg 1380

Does Not Comply
Corrected Diskette Needed

ppr 6-7

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/620,052

DATE: 01/15/2004

TIME: 10:08:38

Input Set : A:\-40-1.app

Output Set: N:\CRF4\01152004\J620052.raw

55 aaqacagagg actaccttt ccaagtgate ctggagaagc ccattccggat ccccccgttc 1440
 56 ctgtccgtca aagcctccca tggttttaaaa ggatttttaa ataaggaccc caaagagagg 1500
 57 ctcggctgccc ggcacacagac tggattttct gacatcaagt cccacgcgtt cttccgcagc 1560
 58 atagactggg acttgctgga gaagaagcag ggcgtccctc cattccagcc acagatcaca 1620
 59 gacgactacg gtctggacaa ctttgacaca cagttcacca gcgagccgt gcagctgacc 1680
 60 ccagacgatg aggatgccat aaagaggatc gaccagtca gatTCGAAGC ctttgagtat 1740
 61 atcaacccat tattgctgtc caccggagag tcggtgttag gccgcgtgcg tctctgtcgt 1800
 62 ggacacgcgt gattgaccct ttaactgtat ccttaaccac cgcatatgca tgccaggctg 1860
 63 ggcacggctc cgaggggcqgc cagggacaga cgcttgcqcc qagaccqcaq agggaaagcgt 1920
 64 cagcgggcgc tgctgggagc agaacagtcc ctcacacactg gcccggcagg cagcttcgtg 1980
 65 ctggaggaac ttqctgctgt gcctgcgtc cggcggatcc gcggggaccc tgccgagggg 2040
 66 gctgtcatgc ggttccaag gtgcacattt tccacggaaa cagaactcga tgcaactgacc 2100
 67 tgctccgcca ggaagtqag cgtgtacgt cctgaggaat aaaatgtcc gatgaaaaaa 2160
 68 aaaa 2164

71 <210> SEQ ID NO: 2

72 <211> LENGTH: 592

73 <212> TYPE: PRT

74 <213> ORGANISM: Homo sapiens

76 <220> FEATURE:

77 <223> OTHER INFORMATION: protein kinase C, zeta (PKC-zeta), atypical
78 protein kinase C isoform

80 <400> SEQUENCE: 2

81	Met	Pro	Ser	Arg	Thr	Asp	Pro	Lys	Met	Glu	Gly	Ser	Gly	Gly	Arg	Val
82	1				5				10						15	
84	Arg	Leu	Lys	Ala	His	Tyr	Gly	Gly	Asp	Ile	Phe	Ile	Thr	Ser	Val	Asp
85					20				25						30	
87	Ala	Ala	Thr	Thr	Phe	Glu	Glu	Leu	Cys	Glu	Glu	Val	Arg	Asp	Met	Cys
88					35				40						45	
90	Arg	Leu	His	Gln	Gln	His	Pro	Leu	Thr	Leu	Lys	Trp	Val	Asp	Ser	Glu
91				50				55							60	
93	Gly	Asp	Pro	Cys	Thr	Val	Ser	Ser	Gln	Met	Glu	Leu	Glu	Glu	Ala	Phe
94					65			70			75				80	
96	Arg	Leu	Ala	Arg	Gln	Cys	Arg	Asp	Glu	Gly	Leu	Ile	Ile	His	Val	Phe
97					85			90			95					
99	Pro	Ser	Thr	Pro	Glu	Gln	Pro	Gly	Leu	Pro	Cys	Pro	Gly	Glu	Asp	Lys
100				100				105							110	
102	Ser	Ile	Tyr	Arg	Arg	Gly	Ala	Arg	Arg	Trp	Arg	Lys	Leu	Tyr	Arg	Ala
103					115				120						125	
105	Asn	Gly	His	Leu	Phe	Gln	Ala	Lys	Arg	Phe	Asn	Arg	Arg	Ala	Tyr	Cys
106					130				135						140	
108	Gly	Gln	Cys	Ser	Glu	Arg	Ile	Trp	Gly	Leu	Ala	Arg	Gln	Gly	Tyr	Arg
109					145			150			155				160	
111	Cys	Ile	Asn	Cys	Lys	Leu	Leu	Val	His	Lys	Arg	Cys	His	Gly	Leu	Val
112					165			170							175	
114	Pro	Leu	Thr	Cys	Arg	Lys	His	Met	Asp	Ser	Val	Met	Pro	Ser	Gln	Glu
115					180			185			190					
117	Pro	Pro	Val	Asp	Asp	Lys	Asn	Glu	Asp	Ala	Asp	Leu	Pro	Ser	Glu	Glu
118					195			200			205					
120	Thr	Asp	Gly	Ile	Ala	Tyr	Ile	Ser	Ser	Arg	Lys	His	Asp	Ser	Ile	

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/620,052

DATE: 01/15/2004
TIME: 10:08:38

Input Set : A:\-40-1.app
Output Set: N:\CRF4\01152004\J620052.raw

121	210	215	220
123	Lys Asp Asp Ser Glu Asp Leu Lys Pro Val Ile Asp Gly Met Asp Gly		
124	225	230	235
126	Ile Lys Ile Ser Gln Gly Leu Gly Leu Gln Asp Phe Asp Leu Ile Arg		240
127	245	250	255
129	Val Ile Gly Arg Gly Thr Tyr Ala Lys Val Leu Leu Val Arg Leu Lys		
130	260	265	270
132	Lys Asn Asp Gln Ile Tyr Ala Met Lys Val Val Lys Lys Glu Leu Val		
133	275	280	285
135	His Asp Asp Glu Asp Ile Asp Trp Val Gln Thr Glu Lys His Val Phe		
136	290	295	300
138	Glu Gln Ala Ser Ser Asn Pro Phe Leu Val Gly Leu His Ser Cys Phe		
139	305	310	315
141	Gln Thr Thr Ser Arg Leu Phe Leu Val Ile Glu Tyr Val Asn Gly Gly		320
142	325	330	335
144	Asp Leu Met Phe His Met Gln Arg Gln Arg Lys Leu Pro Glu Glu His		
145	340	345	350
147	Ala Arg Phe Tyr Ala Ala Glu Ile Cys Ile Ala Leu Asn Phe Leu His		
148	355	360	365
150	Glu Arg Gly Ile Ile Tyr Arg Asp Leu Lys Leu Asp Asn Val Leu Leu		
151	370	375	380
153	Asp Ala Asp Gly His Ile Lys Leu Thr Asp Tyr Gly Met Cys Lys Glu		
154	385	390	395
156	Gly Leu Gly Pro Gly Asp Thr Thr Ser Thr Phe Cys Gly Thr Pro Asn		
157	405	410	415
159	Tyr Ile Ala Pro Glu Ile Leu Arg Gly Glu Glu Tyr Gly Phe Ser Val		
160	420	425	430
162	Asp Trp Trp Ala Leu Gly Val Leu Met Phe Glu Met Met Ala Gly Arg		
163	435	440	445
165	Ser Pro Phe Asp Ile Ile Thr Asp Asn Pro Asp Met Asn Thr Glu Asp		
166	450	455	460
168	Tyr Leu Phe Gln Val Ile Leu Glu Lys Pro Ile Arg Ile Pro Arg Phe		
169	465	470	475
171	Leu Ser Val Lys Ala Ser His Val Leu Lys Gly Phe Leu Asn Lys Asp		480
172	485	490	495
174	Pro Lys Glu Arg Leu Gly Cys Arg Pro Gln Thr Gly Phe Ser Asp Ile		
175	500	505	510
177	Lys Ser His Ala Phe Phe Arg Ser Ile Asp Trp Asp Leu Leu Glu Lys		
178	515	520	525
180	Lys Gln Ala Leu Pro Pro Phe Gln Pro Gln Ile Thr Asp Asp Tyr Gly		
181	530	535	540
183	Leu Asp Asn Phe Asp Thr Gln Phe Thr Ser Glu Pro Val Gln Leu Thr		
184	545	550	555
186	Pro Asp Asp Glu Asp Ala Ile Lys Arg Ile Asp Gln Ser Glu Phe Glu		560
187	565	570	575
189	Gly Phe Glu Tyr Ile Asn Pro Leu Leu Leu Ser Thr Glu Glu Ser Val		
190	580	585	590
193	<210> SEQ ID NO: 3		
194	<211> LENGTH: 3663		

RAW SEQUENCE LISTING DATE: 01/15/2004
PATENT APPLICATION: US/10/620,052 TIME: 10:08:38

Input Set : A:\-40-1.app
Output Set: N:\CRF4\01152004\J620052.raw

195 <212> TYPE: DNA
196 <213> ORGANISM: Homo sapiens
198 <220> FEATURE:
199 <223> OTHER INFORMATION: phosphoinositide-specific phospholipase C beta 1,
200 isoform a (PLC-beta1), transcript variant 1
202 <400> SEQUENCE: 3
203 cagatggccg gggctcaacc cggagtgcac gccttgcAAC tcaAGCCGT gtgcgtgtcc 60
204 gacagcCTCA agaaggGCAC caaattcgTC aagtggatG atgattcaac tatttttaCT 120
205 ccaatttattt tgaggactga ccctcaggGA tttttctttt actggacaga tcaaaacaag 180
206 gagacagAGC tactggatCT cagcCTTgTC aaagatGCCA gatgtgggAG acacGCCAA 240
207 gctcccAagg accccaaATT acgtGAACt ttggatgtgg ggaacatCGG ggcctggag 300
208 cagcgcATGA tcacAGTgGT gtatgggcCT gacCTCGTGA acatCTCCCA tttGAATCTC 360
209 gtggCTTCC aagaAGAAGt ggccaaggAA tggacaAAAtG aggTTTcAG tttggcaaca 420
210 aacCTgCTGG cccAAAACAT gtccaggGA gCATTTCGG AAAAGCCTA tactAAACTT 480
211 aagCTgCAAG tcactCCAGA agggcgtATT cctCTCAAAA acatataTCG cttgtttca 540
212 gcagatcgGA agcgAGTGA aactGCTTA gaggGTTgTA gtcttCCATC ttcaAGGAAT 600
213 gattcaatac ctcaagaaga tttcactCCA gaagtGTACA gagTTTcCT caacaACCTT 660
214 tgccCTCGAC ctgAAattGA taACATCTT tcagaATTG gtGCAAAAAG caaAccATAT 720
215 ctTaccGTTG atcAGATGAT ggATTTATC aacCTTAAGC agcGAGATCC tcggCTTAAT 780
216 gaaataCTT atCCACCTCT AAAACAAGAG caagTCCAAg tattGATTgA gaAGTATgAA 840
217 cccAAACAACA gcCTCGCCAG AAAAGGACAA atATCAGTGG atGGGTTCAT ggcGCTATCTG 900
218 aGTTGGAGAAG AAAACGGAGT CGTTTCACTT gagaAAACTGG atttGAATgA agACATgTCT 960
219 cagccccCTT ctcactATTt cattaATTCC tcgcacaACa CCTACCTCAC agCTGGCCAA 1020
220 ctggCTggAA actCCTCTGT tgAGATGTAT cgccAAgtGC tcctGTCTGG ttgtcgCTGT 1080
221 gtggAGCTgg actgCTggAA gggacGGact gcagaAGAGG aacCTgTCAT caccatGGC 1140
222 ttCaccatGA caactgAAAT atCTTCAAG gaAGTgATAG aagCAATTgC ggAGTGTgCA 1200
223 ttAAgACTT cacTTTCC aattCTCCTT tcgttGAGA accATGTgGA ttccccAAAG 1260
224 cagcaAGCCA agatGGCGGA gtactGCCGA ctgatCTTtG gggatGCCtT tctcatGGAG 1320
225 cccCTggAAA aatATCCACT ggaATCTgGA gttcCTCTTC caAGCCCTAT ggATTtAAATg 1380
226 tataAAAttT tggtaaaaaA taAGAAGAAA tcacacaAGT catcAGAAGG aAGCGGCAA 1440
227 aagaAGCTCT cagaACAACG CTCCAAcACC tacAGTgACT CCTCCAGCAT gttcgAGCCC 1500
228 tcatCCCCAG gagCCGGAGA agCTgATAcG gaaAGTgACG acgACGATgA tgATgATgAC 1560
229 tggAAAAAAAT cttcaatgGA tgAGGGGACT gctggAAgTg aggCTATggC cacAGAAGAA 1620
230 atgtctaATC tggtaACTA tattcAGCCA gtcaAGTTG agtCATTgA aatttCAAAA 1680
231 aaaAGAAATA aaAGTTTgA aatgtCTTCC ttCGTggAAA ccaAAAGGACT tgaACAAACTC 1740
232 accaAGTCTC cagtGAAATT tgtagAAAT aacaAAATgC agCTTAGCAG gatATATCCA 1800
233 aaAGGAACAC gtgtGATTc atCCAACtAT atGCCTCAGC tttCTGGAA tgcAGGTTgT 1860
234 cagatGGTgG cactTAATTt ccAGACAATg gacCTGGCTA tgcaAAAtAA tatGGGATg 1920
235 tatgaatacA acggAAAGAG tggCTACAGA ttGAAGCCAG agtTCATgAG gaggCCTgAC 1980
236 aagcATTtG atCCATTAC tgaAGGCAtC gtagATGGGA tagTGGCAAA cactTTGTCT 2040
237 gttAAGATTA tttcAGGTCA gtttCTTTCT gataAGAAAG ttGGGACTTA cgtggAAgTA 2100
238 gatATgTTTg gtttGCTGT ggatacAAAG AggaAGGCAt ttaAGACCAA aacATCCAA 2160
239 ggaAAAtGCTG tgaAtCCTGT ctggGAAGAA gaACCTATTg tgTTCAAAA ggtGGTTCTT 2220
240 cctactCTGG cctgTTGAG aatAGCAGTT tatGAAGAAG gagGTAAtt cattGGCAC 2280
241 cgtatCTTGc cagtGCAAGC cattCGGCCA ggCTATCaCT atATCTgTC aAGGAATgAA 2340
242 aggaACCAGC ctctGACGCT gcctGCTgTC ttGtCTACA tagAGTgAA agACTATgTg 2400
243 ccAGACACAT atGcAGATGT catGAAgCT ttatCAAACc CAATCCGATA tGtGAACCTG 2460
244 atGGAACAGA gagCTAAgCA attGGCTGT ttGACACTGG aAGATgAAAG agAAGTAAAG 2520
245 aaqaqqCTq atcCTGGAGA aacACCAtCA gagGTCCAA gtGAAGCGAG aacGACTCCA 2580

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/620,052

DATE: 01/15/2004

TIME: 10:08:38

Input Set : A:\-40-1.app

Output Set: N:\CRF4\01152004\J620052.raw

246 gcagaaaatg gggtaatca cactacaacc ctgacaccca agccaccctc ccaggcttc 2640
 247 cacagccagc cagctccagg ttctgtaaag gcacctgcca aaacagaaga tcttattcag 2700
 248 agtgtcttaa cagaagtgg agcacagacc atcgaagaac taaagcaaca gaaatcgtt 2760
 249 gtgaaacttc aaaagaaaca ctacaaagaa atgaaagacc tggtaagag acaccacaag 2820
 250 aaaaccactg accttatcaa agaacacact accaagtata atgaaattca gaatgactac 2880
 251 ttgagaagga gagccgctt ggaaaagtcc gcacaaaagg acagtaagaa aaaatcgaa 2940
 252 cccagcagcc ctgatcatgg ttcatcaacg attgagcaag acctcgctgc tctggatgct 3000
 253 gaaatgaccc aaaagttaat agacttgaag gacaaacaac agcagcagct gcttaatctt 3060
 254 cggcaagaac agtattatag tgaaaaatac cagaagcgg aacatattaa actgcttatt 3120
 255 caaaaggta cgatgtcgc agaagagtgt cagaacaatc agttaagaa gctcaaagaa 3180
 256 atctgtgaga aagaaaagaa agaattaaag aagaaaatgg ataaaaagag gcaggagaag 3240
 257 ataacagaag ctaaatccaa agacaaaagt cagatggaaag aggagaagac agagatgatc 3300
 258 cggtcataatac tccaggaagt ggtcagttt atcaagaggc tagaagaagc gcaaagtaaa 3360
 259 cggcaagaaa aactcgtaga gaaacacaag gaaatacgtc agcagatcct ggtgaaaag 3420
 260 cccaaactgc aggtggagct ggagcaagaa taccagaca aattcaaaag actgcccctc 3480
 261 gagatttgg aattcgtgca ggaagccatg aaaggaaaga tcagtgaaga cagcaatcac 3540
 262 ggttctgccc ctctctccct gtcttcagac cctggaaaag tgaaccacaa gactccctcc 3600
 263 agtgaggagc tgggaggaga catcccagga aaagaatttg atactcctct gtgaatgctc 3660
 264 ctg 3663
 267 <210> SEQ ID NO: 4
 268 <211> LENGTH: 1216
 269 <212> TYPE: PRT
 270 <213> ORGANISM: Homo sapiens
 272 <220> FEATURE:
 273 <223> OTHER INFORMATION: phosphoinositide-specific phospholipase C beta 1,
 274 isoform a (PLC-beta1), transcript variant 1
 276 <400> SEQUENCE: 4
 277 Met Ala Gly Ala Gln Pro Gly Val His Ala Leu Gln Leu Lys Pro Val
 278 1 5 10 15
 280 Cys Val Ser Asp Ser Leu Lys Lys Gly Thr Lys Phe Val Lys Trp Asp
 281 20 25 30
 283 Asp Asp Ser Thr Ile Val Thr Pro Ile Ile Leu Arg Thr Asp Pro Gln
 284 35 40 45
 286 Gly Phe Phe Tyr Trp Thr Asp Gln Asn Lys Glu Thr Glu Leu Leu
 287 50 55 60
 289 Asp Leu Ser Leu Val Lys Asp Ala Arg Cys Gly Arg His Ala Lys Ala
 290 65 70 75 80
 292 Pro Lys Asp Pro Lys Leu Arg Glu Leu Leu Asp Val Gly Asn Ile Gly
 293 85 90 95
 295 Arg Leu Glu Gln Arg Met Ile Thr Val Val Tyr Gly Pro Asp Leu Val
 296 100 105 110
 298 Asn Ile Ser His Leu Asn Leu Val Ala Phe Gln Glu Glu Val Ala Lys
 299 115 120 125
 301 Glu Trp Thr Asn Glu Val Phe Ser Leu Ala Thr Asn Leu Leu Ala Gln
 302 130 135 140
 304 Asn Met Ser Arg Asp Ala Phe Leu Glu Lys Ala Tyr Thr Lys Leu Lys
 305 145 150 155 160
 307 Leu Gln Val Thr Pro Glu Gly Arg Ile Pro Leu Lys Asn Ile Tyr Arg
 308 165 170 175

10/620,052 6

<210> SEQ ID NO 21
<211> LENGTH: 2297
<212> TYPE: DNA
<213> ORGANISM: Homo sapiens
<220> FEATURE:
<223> OTHER INFORMATION: PIM1 oncogene serine threonine kinase
<400> SEQUENCE: 21

gccccgcacccatc ctggagggtt ggatgctctt gtccaaaatc aactcgcttg cccacacctgc 60
cgccccgcgcc tgcaacgacc tgcaccccac caagctggcg ccgggcgaagg agaaggagcc 120
cctggagtgc cagtagccagg tgggcccgc actgggcagc ggcggcttcg gctcggtcta 180
ctcaggccatc cgctgttcgc acaacttgcc gttggccatc aaacacgtgg agaaggaccg 240
gatttccgac tggggagagc tgcctaattgg cactcgagtg cccatgaaag ttgtcctgtc 300
gaagaagggtg agctcggtt tctccggcgt cattaggctc ctggactgtt tcgagaggcc 360
cgacagtttc gtctctgtatcc tggagaggcc cgagccgtg caagatctct tcgacttcat 420
cacggaaagg ggagccctgc aagaggagct ggcccgcagc ttcttcgtgc aggtgctgga 480
ggccgtgcgg cactgccaca actgcggggt gctccaccgc gacatcaagg acgaaaacat 540
ccttatcgac ctcataatcgcg gcgagctcaa gctcatcgac ttccggcgtg gggcgtctgc 600
caaggacaccgtgtctacacagg acttcgtatgg gaccccgatgt tatagccctc cagagtggat 660
ccgctaccat cgctaccatg gcaggtcggc ggcagtctgg tccctggga tcctgctgt 720
tgatatggtg tggagata ttcccttcga gcatgacgaa gagatcatca ggggccaggt 780
tttcttcagg cagagggtct cttcagaatg tcagcatctc attagatggt gcttggccct 840
gagaccatca gataggccaa cttcgaaga aatccagaac catccatgga tgcaagatgt 900
tctctgccc cagaaaaatg ctgagatcca cttccacagc ctgtccggg gggccagcaa 960
atagcagcct ttctggcagg tcccccctc tcttgtcaga tgcccaggag ggaagcttct 1020
gtctccagct ttcccgagta ccagtgcacac gtctcgccaa gcaggacagt gcttgataca 1080
ggaacaacat ttacaactca ttccagatcc cagggccctg gaggctgcct cccaaacagt 1140
ggyaagagtg actctccagg ggtcttaggc ctcactctt cccatagata ctcttttctt 1200
ctcataggtg tccagcattt ctggactctg aaatatcccg ggggtgggg gtgggggtgg 1260
gtcagaaccc tgccatggaa ctgtttctt catcatgagt tctgctaat gccgcgtatgg 1320
gtcaggtagg gggaaacag gttggatgg gataggacta gcaccatTTT aagtccctgt 1380
cacctttcc gactttttct gagtgccctc tggggact ccggctgtc tggagaaaat 1440
acttgaactt gcctttta cctgctgtt ctccaaaaat ctgcctgggt tttttccct 1500
atttttctct cctgtccctt ctcacccctt cttcatatg aaagggtccca tggagggc 1560
tacagggcca aacgctgagc cacctgcctt ttttctctt ctttagtaa aactccgagt 1620
gaactggctt tcctttttgg ttttactta actgtttcaa agccaagacc tcacacacac 1680
aaaaaatgca caaacaatgc aatcaacaga aaagctgtaa atgtgtgtac agtggcatg 1740
gtatgtatca aaaagattgt agtggatcta atttttaaga aattttgcct ttaagttatt 1800
ttacctgttt ttgtttctt tttgaaaga tgccattctt aacctggagg tcaatgttat 1860
gtatatttattt atttatttat ttgggtccctt tcctahnnnnnnnnnnnngctg ctggccctagt 1920
tttctttccctt cctttccctt ctcgacttgg ggaccccttgg ggggagggtt ggcacgcttg 1980
ctctgtttgtt ggggtgacgg gactcaggcg ggacagtgtt gcaactccctt ggcttctgt 2040
ggcccccctca cctacttacc caggtgggtc ccggctctgtt ggggtgatggg gaggggcatt 2100
gctgactgtt gatataaggat aattatgaaa agcagttctg gatgggtgtc ctccagatc 2160
ctctctgggg ctgtgtttt gacagcaggat agcactgttgg ttttatctga gtgaaataact 2220
gtacagggga ataaaagaga tcttattttt tttttatac ttggcgtttt ttgaataaaaa 2280
accttttgc taaaac 2297

→ see
p. 7
for error
clarification

7

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/620,052

DATE: 01/15/2004
TIME: 10:08:39

error explanation
Input Set : A:\-40-1.app
Output Set: N:\CRF4\01152004\J620052.raw

ase Note:

of n and/or Xaa have been detected in the Sequence Listing. Please review the
uence Listing to ensure that a corresponding explanation is presented in the <220>
<223> fields of each sequence which presents at least one n or Xaa.

#:21; N Pos. 1896,1897,1898,1899,1900,1901,1902,1903,1904,1905,1906

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/620,052

DATE: 01/15/2004

TIME: 10:08:39

Input Set : A:\-40-1.app

Output Set: N:\CRF4\01152004\J620052.raw

285 M:258 W: Mandatory Feature missing, <221> Tag not found for SEQ ID#:21
285 M:258 W: Mandatory Feature missing, <222> Tag not found for SEQ ID#:21
285 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:1860